

VISUAL ANALYSIS OF SMART CLASSROOMS GRAPHIC METAPHOR - 'THE ROCKET SHIP' TEXT

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Abstract

The presentation provides a visual analysis of 'The Rocket Ship metaphor' used in Education Queensland's Smart Classrooms strategy aimed at enhancing and transforming learning with ICT in Queensland's state schooling system. The importance of the 'The Rocket Ship' is that it was designed "to help communicate to the various groups that they actually all need to pull together in order to pull off what it is that we are after under Smart Classrooms" (Eden, 2007). The visual analysis investigated: What is the purpose of the text and who is the intended audience? Who should be the major audience and how does this affect the purpose of the text? In terms of visual design does the text achieve this purpose in relation to the major audience? What discourses have been made transparent within this process of interpretation and consequently production? From this analysis, implications surrounding visual design are identified, in order to influence and inform future graphic metaphors which might be produced by Education Queensland to promote ICT initiatives in schools.

Introduction – The Smart Classrooms Initiative in Queensland

This paper presents a summary of an Honours dissertation completed by the lead author as the preservice teacher education student, and supervised by the co-authors of this paper. The motivation to undertake this research emanated from the Honours student, as a preservice teacher education student, having observed during her professional experience placements that many teachers continue to be challenged in terms of pedagogical approaches which enable effective integration of ICT. In her observations, she witnessed teachers who seem to be committed to professional learning in ICT integration and also sensed that there are teachers who are not committed. Her observations are evident in the literature. For example, while research into ICT in schools is well into its third decade, 'there is still a pressing need to better understand how computer-based technologies are influencing learning opportunities' (Hayes, 2007, p. 1). Similarly, these observations support Finger's (2005) assertion that there are expectations for teachers to improve their pedagogical practices using ICT to improve student learning outcomes which 'reflects the rationale that has justified and continues to justify the investments and energy we've witnessed over more than two decades and continue to witness in our schools to make ICTs integral to learning' (Finger, 2005, p. 1).

The current Queensland Premier, Anna Bligh MP, reinforces the importance of this at the political level in declaring that, 'Today's students need *Smart Classrooms*. They are the first generation to grow up surrounded by and using ICT. The way we teach students must evolve so that our teachers and students speak the same language' (Education Queensland, 2005, p. 3). That statement is also reflected in Education Queensland's (EQ) ICT initiative in schools - the *Smart Classrooms* initiative. The strategy's overriding aim is 'making ICTs integral to learning' (EQ, 2005, p. 2), whilst providing 'a cohesive future-focused mix of products and services for schools to teach, manage, learn and innovate with new technologies' (EQ, 2005, p. 2). Metaphorically representing the *Smart Classrooms*

strategy is ‘the rocket ship’ text, as shown in Figure 1.1.

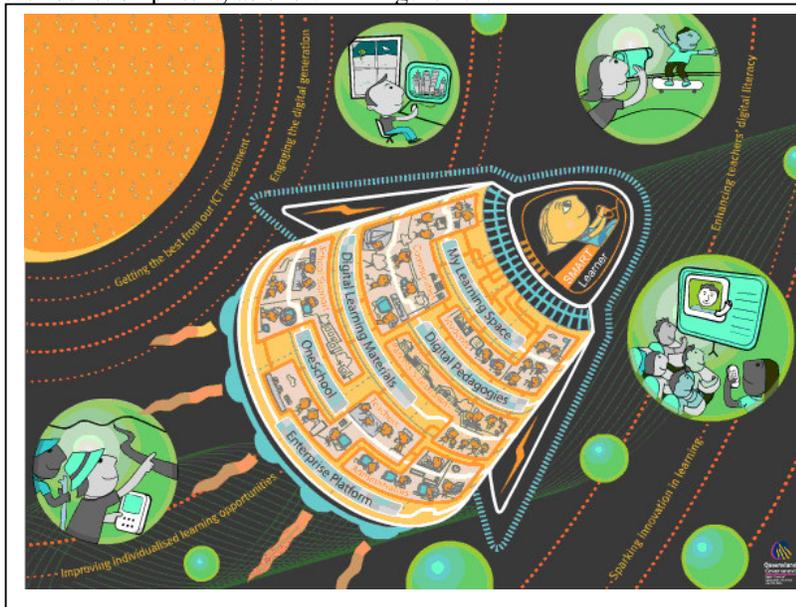


Figure 1.1: ‘The rocket ship’ text

At the Education Conference titled *Positioning learning for the 21st century*, held in Emerald in August 2007, Dr Richard Eden, the ‘planner, architect and deliverer’ (EQ, 2008) of *Smart Classrooms* provided an overview of the ICT integration strategy. This presentation and Eden’s profile can be viewed at http://education.qld.gov.au/smartclassrooms/profile_richard-eden.html and is captured within Figure 1.2. At that conference, Eden (2007) explained that, ‘the rocket ship is really used for me (Eden) to help communicate to the various groups that they actually all need to pull together in order to pull off what it is that we are after under *Smart Classrooms*’ (Eden, 2007).

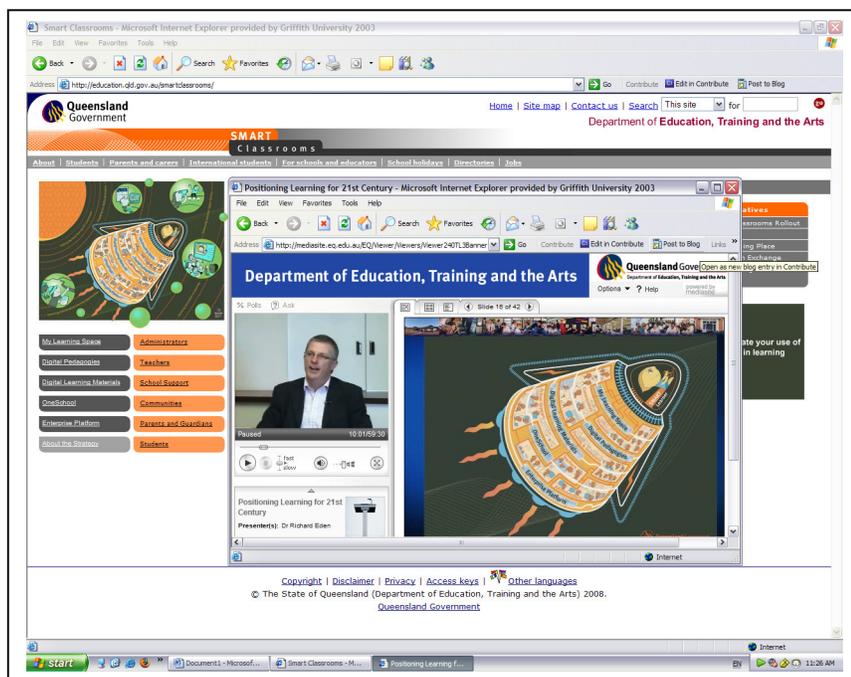


Figure 1.2: Screen shot of Eden’s address at the Education Conference

Given Eden’s multi-dimensional role as not only planner and architect, but also deliverer of the *Smart Classrooms* strategy, one is forced to question who are ‘we’ and what exactly must the ‘various groups’ ‘pull off’? Should we not consider the ‘various groups’ actually labelled within the text, such as Administrators, School Support, Parents and Guardians, Communities, Students, The Smart Learner and even the Teachers? Do they not play a part in planning, designing and delivering ICT infused education, in order to make ICTs integral to learning? The bottom line is that, among these ‘various groups’ the key player in ‘making ICT integral to learning’ (EQ, 2005, p. 2) is the ‘computer-able teacher’ (Fifoot, 2000, p. 19).

The Research Aim and Research Questions – ‘The Rocket Ship’ and Teachers

It could be hypothesised that through ‘the rocket ship’ text, EQ would seek to motivate, enthuse and spark excitement within the teachers to be not just ‘computer-able’ (Fifoot, 2000), but innovative users of ICT within their pedagogical practices. The aim of this study is to test this hypothesis. ‘The rocket ship’ text, EQ’s graphic metaphor for the *Smart Classrooms* strategy, must appeal to the teachers, as the strategy’s success is highly dependent on teachers, as ‘only the computer-able teacher can make it happen’ (Fifoot, 2000, p. 19). Through visual analysis of ‘the rocket ship’ text, the following questions were investigated:

- What is the purpose of the text and who is the intended audience?
- Who should be the major audience and how does this affect the purpose of the text? In terms of visual design does the text achieve this purpose in relation to the major audience?
- What discourses have been made transparent within this process of interpretation and consequently production?

From this analysis, implications surrounding visual design will be identified, in order to influence and inform future graphic metaphors produced by EQ.

Significance of the Study

Given the importance of *Smart Classrooms* and the central importance of the strategy’s graphic metaphor, this research project is significant as it is necessary to discover whether or not ‘the rocket ship’ text is visually designed to motivate, enthuse and spark excitement within teachers, so that they are not just computer-able, but innovative users of ICT in their pedagogical practices. While this study focuses solely on ‘the rocket ship’ text, it will provide implications for future graphic metaphors which might be used to accompany educational policies or strategies produced by EQ. This issue is becoming increasingly significant due to the recent reverse in the ‘dominance of monomodality’ (Kress & van Leeuwen, 2001, p. 1). Importantly, Kress and van Leeuwen (2001) reinforce that ‘documents produced by corporations, universities, government departments etc., have acquired colour illustrations’ (p.1). Therefore, in this study, we argue that we need to go beyond simply viewing and accepting ‘the rocket ship’ text as a metaphoric representation of the *Smart Classrooms* strategy, to analysing and critiquing the text, as

Visual structures do not simply reproduce the structures of “reality”. On the contrary, they produce images of reality which are bound up in the interests of the social institutions within which the images are produced, circulated and read. They are ideological. Visual structures are never merely formal: they have a deeply important semantic dimension. (Kress & van Leeuwen, 2006, p. 47)

Significantly, ICT stands to transform our system of education, due to ‘the way information is communicated’ (Tan, 2006, p. 8), distributed and received, especially digital images, such as ‘the rocket ship’ text.

Overview of the Methodological Approach

The overarching methodology called upon within this study is critical discourse analysis (CDA), stemming ‘from a critical theory of language which sees the use of language as a form of social practice’ (Janks, 1997, p. 329). However, within the context of this study, a branch of CDA, visual semiotics, is to be employed as the data to be analysed is graphically represented. ‘This work recognises that images, like language, realise not only representations of material reality but also the interpersonal interaction of social reality’ (Unsworth, 2001, p. 72). Ultimately, visual semiotics seeks to exhibit that ‘the rocket ship’ text is not merely a representation of how Eden would like the ‘various groups’ to fit and work together. On the contrary, this text is bound up in the interests of EQ, the organisation within which the image is produced, circulated and read (Kress & van Leeuwen, 2006).

Methods required to analyse data selected call upon a variety of models, including Fairclough’s, *dimensions of discourse and discourse analysis* (1989; 1995; 2001), Luke and Freebody’s *four resources model* (1990; 1999), and Kress and van Leeuwen’s *grammar of visual design* (1996; 2006). In response to combining these models within the one conceptual framework, ‘van Dijk asserts, given the common perspective and the general aim of CDA, we may find overall conceptual and theoretical frameworks are closely related’ (Sheyholislami, 1997, p. 2). By fusing these three models together, the study’s conceptual framework (see Figure 1.3) is firmly grounded within dimensions of discourse and discourse analysis, literary practices and visual/ compositional elements and resources. Ultimately, these models work in alliance with their common perspective, which is to ‘analyse real and often extended instances of social interaction’ (Fairclough et al., 2000, p. 258).

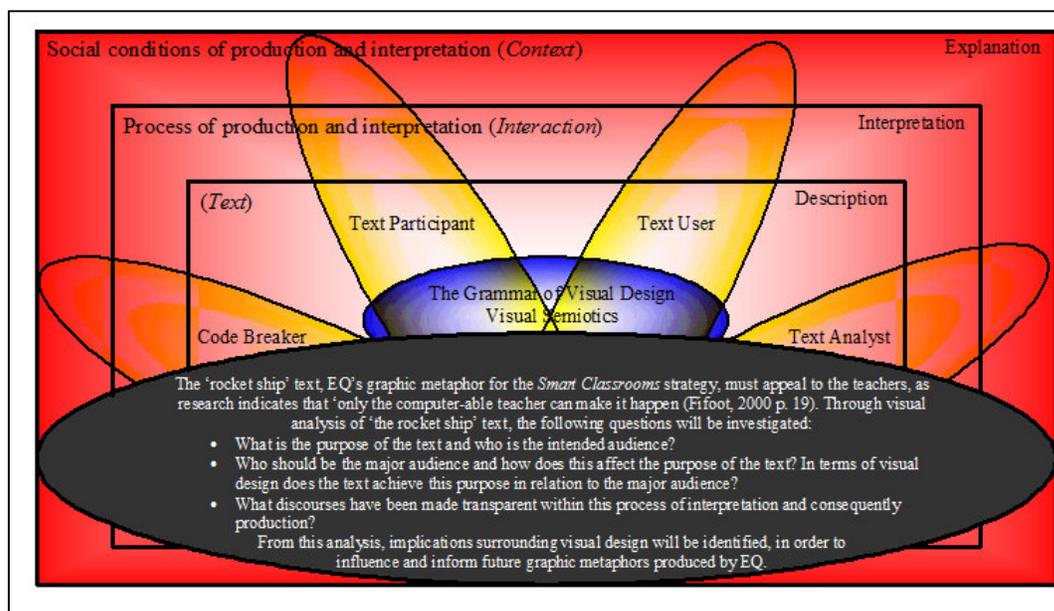


Figure 1.3: Theoretically Driven Conceptual Framework

How the Data were Analysed

Once each element of visual design relevant to ‘the rocket ship’ text had been analysed within the matrix (see Table 1.1), another graphic organiser, the fishbone (see Figure 1.4) was used as a cause and effect map to collate and interpret this data. The fishbone works to show a complex event, (themes within the text) through its interactions, (being the interconnections of *dimensions of discourses*, enabled by the *four resources model* and *grammar of visual design*) (Hartjes, 2007). Within each fishbone, themes or effects were able to be colour-coded in association with their major causes or visual fields, working to foreground these relationships as authentic networks. Systematically, the fishbone was able to present and streamline the analysed data in order to promote movement toward

theme in terms of the way they manifest visually within the text.

Objectified

The theme ‘objectified’ refers to the objectification of participants represented in the text. As observed in Figure 1.5, the visual fields or major causes analysed in terms of contributing to this objectification include, representation and interaction, modality and conceptual representations. These visual fields (major causes) are supported by their associated visual elements (causes) and related visual resources (minor causes). Analysis has revealed that the image act, objective image, technological coding orientations and classificational processes employed within the text have worked to objectify, rather than subjectify the represented participants.

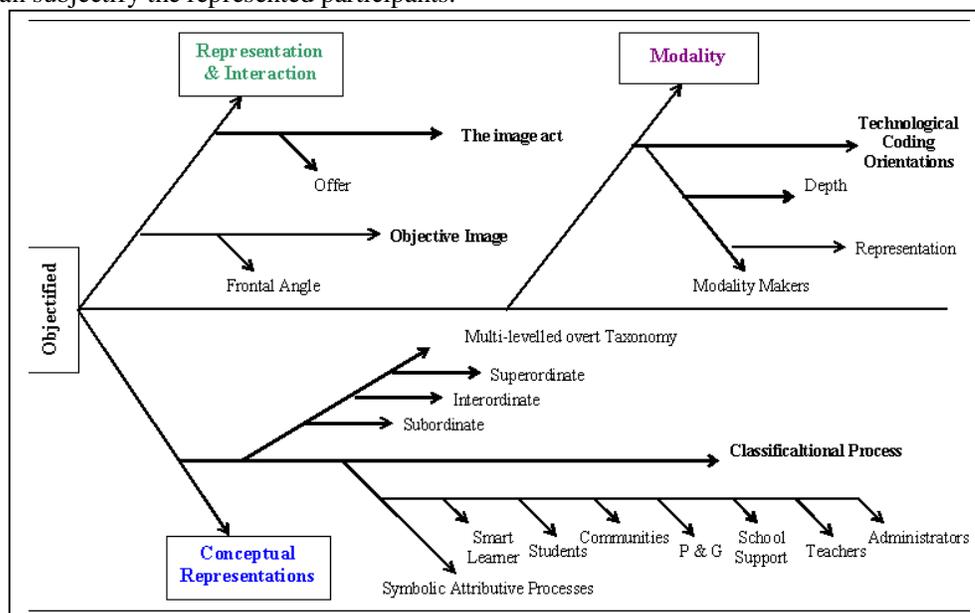


Figure 1.5: Fishbone establishing the theme ‘objectified’

Static

‘Static’ alludes to the stillness or static nature maintained by ‘the rocket ship’ text. Major causes contributing to this effect include narrative representations, the meaning of composition and conceptual representations. Figure 1.6 below exemplifies narrative processes, information value, salience, framing, non-linear composition and classificational processes as the causes responsible for generating this static effect.

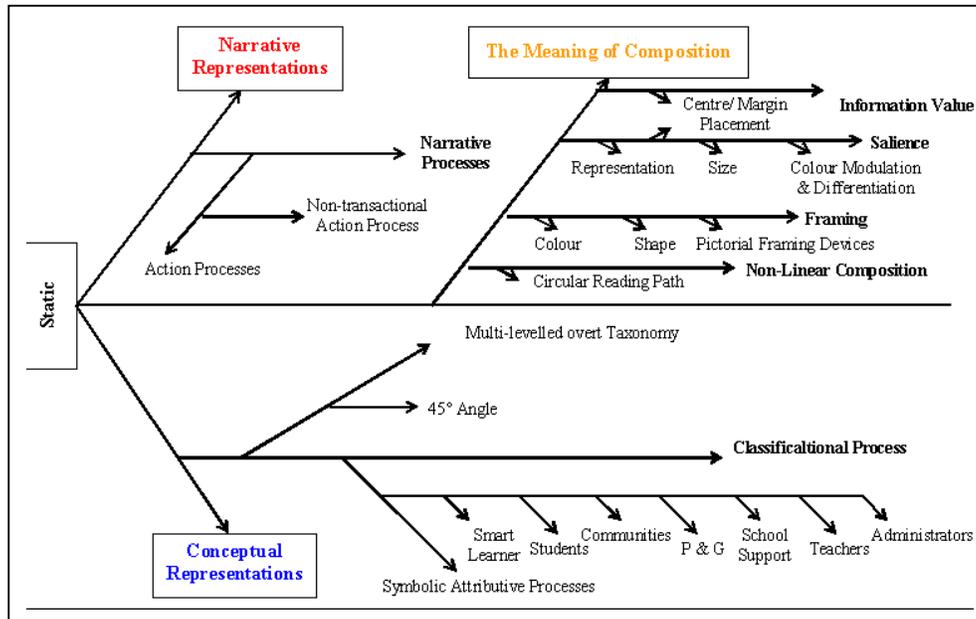


Figure 1.6: Fishbone establishing the ‘static’ theme

Detachment

‘Detachment’ is used to describe the effect established by the text, with regard to the detachment and disengagement of teachers as both viewers and represented participants. Figure 1.7 attaches the meaning of composition, representation and interaction as the major causes that establish this effect. Firstly, the meaning of composition posits information value, salience and framing as isolating the smart classrooms and their facilitators, the teachers, from the primary source of resources and information, the rocket ship. Secondly, representation and interaction denotes the image act, size of frame and social distance and the objective image as working to detach viewers from represented participants.

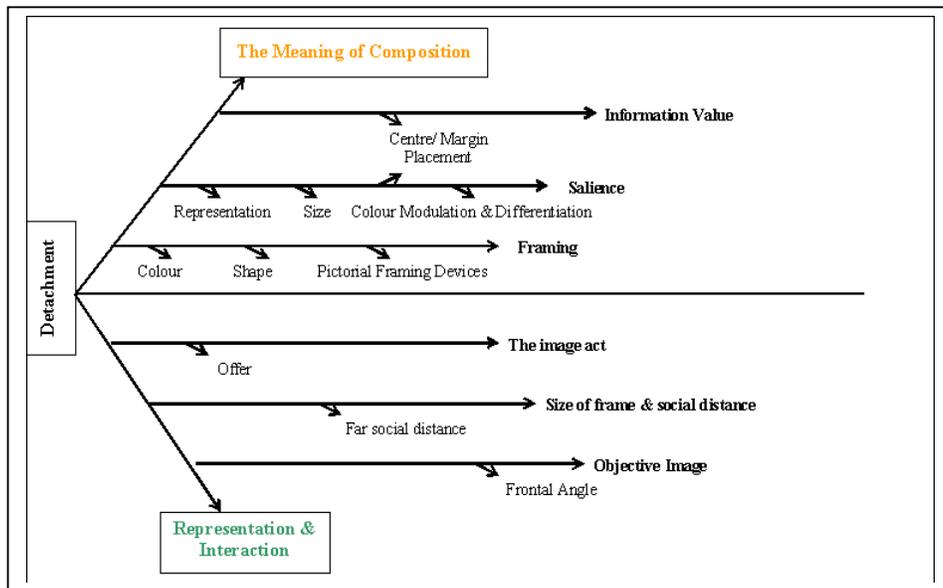


Figure 1.7: Fishbone establishing the theme ‘detachment’

Known and Unknown

Finally, Figure 1.8 below refers to tension between what is ‘known’ and ‘unknown’ with regard to the rocket ship’s destination. This theme is facilitated by the major causes of narrative representation and representation and interaction, with each effect stipulating modality as another major cause. The causes working to establish the effect of unknown are narrative processes, represented participants and the modality makers, colour saturation and contextualisation. In contrast, the known effect is implicated by the causes of objective images and technological coding orientations. Subsequently, it is the causes related to each effect which establishes the tension between what is known and unknown in terms of defining the rocket ship’s destination.

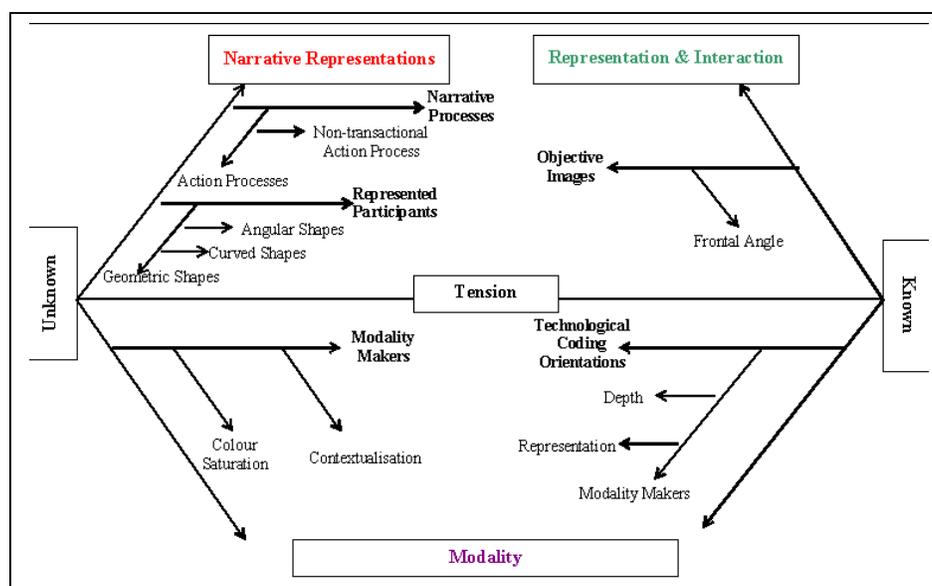


Figure 1.8: Fishbone establishing the theme and tension between the ‘known’ and ‘unknown’

Major Findings and Implications of the Study

Major findings of the study which analysed the visual text metaphor of ‘The Rocket Ship’ are summarised here. A key finding was that the purpose of ‘the rocket ship’ text described by Eden (2007) illustrated that the ‘various groups’ all need to fit and work together to implement the *Smart Classrooms* initiative. Thereby, ‘the rocket ship’ constituted the participants represented within the text as the intended audience of the text were the Smart Learner, Students, Communities, Parents and Guardians, School Support, Teachers and Administrators.

As indicated in the literature reviewed within this study, teachers should be the major audience of ‘the rocket ship’ text, as ‘only the computer-able teacher can make it happen’ (Fifoot, 2000, p. 19). By positioning teachers as the major audience this consequently alters the text’s purpose, in that, the text should have the purpose of seeking to motivate, enthuse and spark excitement within teachers to be not just computer-able, but innovative users of ICT within their pedagogical practices. In terms of visual design, ‘the rocket ship’ text does not achieve this purpose due to the themes ‘objectified’, ‘static’, ‘detachment’, and tension between the ‘known’ and ‘unknown’, and in doing so negated the study’s hypothesis, and the negated the intention of ‘the rocket ship’ metaphor.

Objective/ subjective, journey, sociological and futuristic discourses were made transparent throughout this process of interpretation articulated in the larger documentation of the Honours thesis.

These discourses were represented within the themes which were found through the analysis to also work to negate the study’s hypothesis. By viewing this text as ‘a product of the process of text production’ (Fairclough, 2001, p. 20), these discourses are not only processes of interpretation, but also processes of production.

Implications surrounding visual analysis of ‘the rocket ship’ text have been identified as visual resources relevant to the interpretation and production of most images. Ultimately, these resources maintain the greatest influence with regard to informing future graphic metaphors produced by EQ. These include, a subjective image, a “demand” or gaze and solely naturalistic coding orientations.

- Subjective Image

A subjective image involves the producer selecting an angle, or a “point of view” at which to depict the image. This visual resource brings about relations between represented participants and the viewer, by implying subjective attitudes towards the participants represented within the text.

- “Demand” or gaze

A “demand” or gaze entails depicting represented participant(s) as looking at or gazing at the viewer, with vectors formed by participants’ eyelines connecting. This visual resource works to establish connections or relations between interactive and represented participants, even if this contact is only at the imaginary level.

- Naturalistic coding orientations

Naturalistic coding orientations are the coding orientations in which all members of a culture share. These orientations will always be summoned of viewers by producers when observing and analysing text. However, inclusion of additional coding orientations may work to disengage and therefore marginalise those viewers who are not equipped with the required level of education or field of knowledge, such as ICT and ICT infused pedagogies.

Limitations of the Study and Suggestions for Future Research

This study is limited in that a single component of the *Smart Classrooms* strategy was analysed, with critique facilitated by a single analyst. ‘The rocket ship’ text was selected because this graphic was produced to metaphorically represent the *Smart Classrooms* strategy. Eden (2007) explains, ‘This is another metaphor we’ve built over the last six months to try and describe to people how we want all of this to fit together’. One can confidently assume that it is the multiple components of the *Smart Classrooms* strategy, which through ‘the rocket ship’ text are being fitted together. Although this text is a metaphor and does symbolise the strategy, one is forced to question why key processes, such as professional learning of teachers and vital documents, such as Education Queensland’s *ICT Index* and the *Smart Classrooms Professional Development Framework* which are included within the *Smart Classrooms* strategy, are absent from this graphic metaphor. Although, in essence, this study sought to encapsulate the *Smart Classrooms* strategy, with key processes and vital documentation absent, this study has not analysed the *Smart Classrooms* strategy, merely a single component, being ‘the rocket ship’ text. It is also important to remember that analysis performed and conclusions reached derive from perspectives and resources enacted upon and maintained by the analyst and her supervisors conducting this study. Therefore, analysis and related conclusions are by no means authoritative or definitive.

As a postscript, the analyst and her supervisors would also have liked to explore the role gender may have played in producing ‘the rocket ship’ text and how this influence may have impacted upon interpretation of the text. This desire is a direct result of analytical findings provoked throughout analysis. Examples include domination of the male gender within the institution of business and the exploration of space, and EQ’s conscious or unconscious decision to incorporate each of these domains within ‘the rocket ship’ text. Impetus to explore this notion stemmed mainly from the analyst’s perception that the shape and direction of the actual rocket ship resembles the shape and direction of the iconic male symbol (see Figures 1.9 and 1.10). Further exploration of these ideas could prove particularly interesting, especially considering that in 2004, 70% of Queensland state school teachers were female and were less confident in their ICT capabilities than their male

counterparts (Jamieson-Proctor et al., 2006). If gender has contributed to the processes of production, then gender will ultimately manifest within the processes of interpretation. Therefore, it could be extrapolated that if results of this study are representative of the state education system in Queensland, then not only are 70% of students currently being taught by teachers who are less confident to use ICT, but the text designed to metaphorically represent EQ’s latest ICT integration strategy may not be designed to appeal to this 70% of female teachers. The authors recommend that these ideas could also be explored and substantiated within future research.



Figure 1.9: ‘The rocket ship’ text

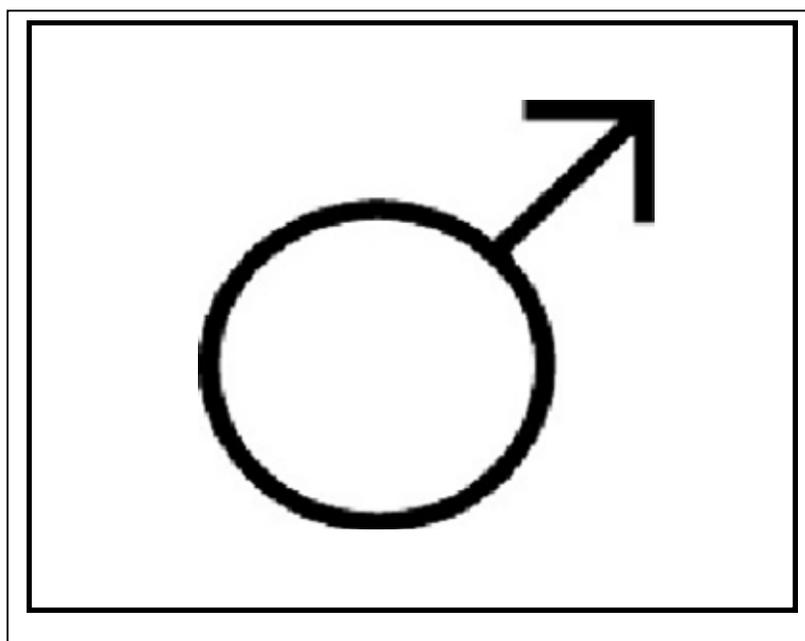


Figure 1.10: The male symbol

Conclusion

The results from this study have confirmed that the purpose of the 'rocket ship' text is to show the 'various groups' how they all have to fit and work together to make ICT integral to learning, labelling represented participants as the intended audience. The literature inferred that teachers should be the major audience of this text as 'only the computer-able teacher can make it happen' (Fifoot, 2000, p. 19). Consequently, this altered the purpose of the text, in that 'the rocket ship' text should now seek to motivate, enthuse and spark excitement within teachers to be not just computer-able, but innovative users of ICT within their pedagogical practices. In terms of visual design the text negated the study's hypothesis, working to 'objectify', make 'static', 'detach' and create tension between the 'known' and 'unknown'. The discourses made transparent throughout this process of interpretation and consequently production were objective/ subjective, journey, sociological and futuristic, as they were linked to the themes which negated the study's hypothesis. Finally, implications of visual analysis, suggested the subjective image, "demand" and naturalistic coding orientations as visual resources which must be considered when producing and interpreting images. These resources therefore maintained the greatest influence with regard to informing future graphic metaphors produced by EQ.

References

- Eden, R. (2007, August 3). *Positioning learning for the 21st century*. Lecture presented for the Emerald Education Conference 2007 staged from Emerald State High School, Emerald, Queensland. Retrieved August 23, 2009, from http://education.qld.gov.au/smartclassrooms/profile_richard-eden.html
- Education Queensland. (2005). *Smart Classrooms: A strategy for 2005-2007*. Brisbane: Queensland Government. Retrieved August 23, 2009 from http://education.qld.gov.au/smartclassrooms/pdf/smart_classrooms_brochure.pdf
- Education Queensland. (2008). *Smart Classrooms* website. Retrieved August 23, 2009 from <http://education.qld.gov.au/smartclassrooms/>
- Fairclough, N. (1989). *Language and Power*. Harlow: Longman Group UK Limited.
- Fairclough, N. (1995). *Critical Discourse Analysis*. Harlow: Longman Group UK Limited.
- Fairclough, N. and Wodak, R. (2000). Critical Discourse Analysis. In T. A. van Dijk (Ed.), *Discourse as Social Interaction: Discourse Studies, A Multidisciplinary Approach* (pp. 258-284). (2nd Ed.). London: Sage.
- Fairclough, N. (2001). *Language and Power* (2nd Ed.). England: Pearson Education Limited.
- Fifoot, B. (2000). The new task of the computer-able teacher. *QUICK - Journal of the QLD Society for Information Technology in Education*, 75, 18-19.
- Finger, G. (2005). ICTs and Professional Learning Pathways: Stories of Effective Professional Development, 2005 Symposium Paper. *Australian Association for Research in Education* (AARE). Retrieved August 23, 2009, from <http://www.aare.edu.au/05pap/fin05772.pdf>
- Hartjes, E. (2007). Graphic Organiser – Fish Bone. *Teachers at Risk*. Retrieved August 23, 2009, from <http://www.teachersatrisk.com/2007/01/01/graphic-organizer-fish-bone/>
- Hayes, D. (2007). ICT and learning: Lessons from Australian classrooms. *Computers and Education*, 49(2), 385-395.
- Jamieson-Proctor, R., Burnett, P., Finger, G. and Watson, G. (2006). ICT integration and teachers' confidence in using ICT for teaching and learning in Queensland state schools. *Australasian Journal of Educational Technology*, 22(4), 511- 530.
- Janks, H. (1997). Critical discourse analysis as a research tool. *Discourse: studies in the cultural politics of education*, 18(3), 329-342.
- Kress, G. & van Leeuwen, T. (1996). *Reading Images: The grammar of visual design*.

- New York: Routledge.
- Kress, G. & van Leeuwen, T. (2001). *Multimodal Discourse: The modes and media of contemporary communication*. Great Britain, London: Arnold.
- Kress, G. and van Leeuwen, T. (2006). *Reading Images: The grammar of visual design* (2nd ed.). Geelong: Deakin University Press.
- Luke, A. & Freebody, P. (1999). A map of possible practices: Further notes on the four resources model. *Practically Primary*, 4(2), 5-8.
- Sheyholislami, J. (1997). *Critical Discourse Analysis*. Retrieved August 23, 2009, from <http://http-server.carleton.ca/~jsheyhol/articles/what%20is%20CDA.pdf>
- Tan, L. (2006). Literacy for the 21st Century. *Educational Technology Divisions, Ministry of Education*. Singapore. Retrieved August 23, 2009, from http://www3.moe.edu.sg/edumall/rd/litreview/literacy4_21st_century.pdf
- Unsworth, L. (2001). Describing visual literacies. In L. Unsworth, *Teaching multiliteracies across the curriculum: Changing contexts of text and image in classroom practice* (pp. 71-112). Buckingham: Open University Press.